DEC/1985

PurchasingWorld

ISSUED IN TWO SECTIONS

Quality is as easy as ECAP for Federal-Mogul

C4670-1

SALARY SURVEY

PurchasingWorld

Helping you manage the business of buying

Vol. 29 No. 12-December 1985

Features

30 Quality is as easy as ECAP at Federal-Mogul
When a company is as committed to using statistical methods in its production to meet demanding quality standards as Federal-Mogul is, the effect is felt all along the capital equipment supplier chain. Here's how Federal-Mogul is making it work, and work well.

34 The wages of purchasing
How does your paycheck stack up against your peers in purchasing? Find out in this new *PW* survey of purchasing salaries. It tells you where purchasing salaries are now, where they are going, and what purchasing management thinks is important when establishing salaries and when awarding raises. Big gains have been made in the past few years with purchasing salaries up over 13%, and with greater recognition being given to the function and people by management. PMs also feel there should be more emphasis on performance standards and incentives for all purchasing people. 1986 raises look good, too.

40 Buyer of the year
PW's annual "Buyer of the Year" results are in. Tough competition didn't make the judges' job too easy. But the winners represent some of the best buyers in the business. They are: **Geraldine S. Woodruff**, buyer for Norton Co.'s Sealants Division, Granville, NY, in the 100-499 employee plant size category; **Theodore Jonczak**, senior contracts agent, Florida Power and Light Co., Miami, FL, in the over 500 employee plant size.

46 Get your name on the fire truck
Title to goods isn't everything. Other factors may determine who owns property in a disputed claim. Here's a case where the courts fashioned a new twist in the old notion of title.

54 Slow going on the rate trail
Rate hikes in transportation are not what everyone throught they would be as recently as three months ago. This exclusive quarterly transportation report by Wharton Econometrics gives a mode-by-mode breakdown of where transportation rates are going.

34

40

Departments

4 PW Pointers
6 Editorial
8 PW Predicts
19 Business Datatrak

Cover Photo: Federal-Mogul's ECAP program team, left to right: F. S. Stewart, engineering buyer; Douglas Rossman, manager, corporate purchasing; Donald R. Geis, manager, corporate quality assurance; and Thomas Ryan, director—materials.

PurchasingWorld (USPS 472-470) is published monthly by Huebner Publications, Inc., 6521 Davis Industrial Parkway, Solon, OH 44139. Printed in USA. Subscriptions: Available without charge to qualified purchasing executives in US manufacturing companies. Available to others in the US for $46/year; Canada $56/year. Foreign subscriptions are available for $85 airmail or $60 surface mail. Sole agent for all subscriptions outside the U.S.A. and Canada is J.B. Tratsart, Ltd., 154a Greenford Road, Harrow, Middlesex HA 13QT, England. Second class postage paid at Cleveland, OH, and additional mailing offices. Editorial, circulation, and business offices: 6521 Davis Industrial Parkway, Solon, OH 44139.

* Copyright 1985 by Huebner Publications, Inc., subsidiary of International Thomson Business Press—All rights reserved.

ISSN 0093 1659

Postmaster: Send address changes to **PurchasingWorld**, 6521 Davis Industrial Parkway, Solon, OH 44139.

PW PREDICTS

Robert S. Reichard, executive editor

Inflation redux? A wee bit

It's getting to be that time of year when most PMs and other business execs are putting the finishing touches to forecasts for the next 12 months.

And some changes seem to be in the offing. Informal talks with these business people suggest that while prices are not about to take off, we probably have already seen the low point in the general inflation rate. Major reasons:

■ **The 20% drop in the value of the dollar since the early part of the year** could add as much as 2% onto the overall price level in 1986. This is based on econometric calculations that every 10% change in the trade-weighted value of the dollar brings with it a 1% change in the price level.

■ **Faster money supply growth.** Monetarists claim that a growing credit supply—defined as checking account deposits plus currency—inevitably precedes a speedup in inflation by roughly a year. It has now been about a year since the money supply began to accelerate.

■ **A slight increase in labor costs.** If history is any indicator, U.S. productivity gains will slow down and wage gains will quicken as the expansion (now about to enter into its fourth year) ages. Productivity in the non-farm sector has been rising at only 1.2% annual rate for the past six months.

■ **The relatively high rate of increase in services costs.** Latest figures suggest that this important sector of the economy is rising at nearly a 5% rate. That's pretty much unchanged from the previous year.

A close look reveals that a bottoming out in the price curve may already be taking place, particularly in the grass roots industrial purchasing sector. True, the latest NAPM Business Survey Committee report shows more PMs still noting lower rather than higher prices. But this gap has been narrowing for two months running. And some members now say the effects of weakening U.S. dollar are finally beginning to affect import prices.

A similar hint comes from a new *PW* survey. Respondents are now talking about a 3.5% overall price increase in the goods they will be buying for the upcoming year.

Nobody is pushing the panic button. Less than one out of ten PMs surveyed expects increases over the next 12 months to average more than 7%.

Some of the new forecasts by top business leaders are in close agreement. The Business Council, for example, sees the GNP deflater (the most inclusive measure of the overall U.S. price level) rising 4.7% over the next 12 months.

Still another sign of potential acceleration comes from the widely monitored Columbia University Center for International Business Cycle Research. This so-called "Leading Index of Inflation" has been edging up for three consecutive months. That's in marked contrast to the virtually uninterrupted slide of the previous 12 months.

It looks like 1986 won't be as easy as 1985. Some advice: Add about 1-2% onto your current year's inflation rate.

Paper

The hotly competitive paper and paperboard industry is likely to stay that way for a while. New capacity should offset the modest increases projected for demand.

On the printing and writing paper front, for example, mills are planning on about a 3.5% increase in overall potential for the upcoming year. This new increase, based on an American Paper Institute (API) survey, is in contrast to the 2.7% boost in demand that is currently forecast for the paper segment of the market.

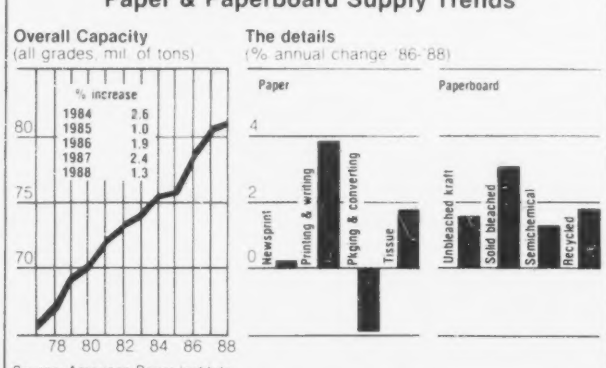
Capacity gains aren't likely to slow down in subsequent years either. The API puts the 1987 and 1988 printing and writing paper gains at 5.4% and 2.6%.

Imports could trail off a bit as the dollar weakens—incoming shipments of uncoated free sheet are already down—but with plenty of excess overseas potential, current overall market softness isn't likely to disappear anytime soon.

The picture is pretty much the same in unbleached kraft paperboard. True, the capacity increases next year are considerably under those anticipated for fine papers—1.7% to be exact. But that's just about in line with the 1.6-1.8% demand gain that API is predicting.

Most mill spokesmen privately admit that any price bounceback to previous highs won't occur any time soon. This certainly seems true of linerboard where prices still remain upwards of $60/ton under the $350/ton quote prevailing in late 1984.

Paper & Paperboard Supply Trends



Source: American Paper Institute

Textiles

CURRENT SITUATION: Tough times are beginning to ease a bit in this hard-pressed industry. Mill production has risen more than 10% since January. And mill operating rates are up from 76.5% in January to 84% now. Prices have also begun to edge up, **currently averaging about 1-2% above 1985 lows.** Denims have been strong. Print cloths are firming. But corduroys, sheets, and towels remain soft from being battered by imports.

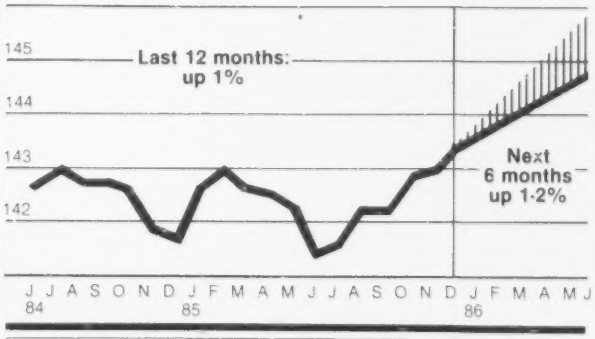
DEMAND: The modest uptrend is expected to continue. But it won't be enough to prevent an estimated 2% drop in overall industry output this year. But **a 3-5% advance is possible for next year** as the industry slowly continues to recover. A positive sign is stabilizing imports. This year imports will be off slightly—in sharp contrast to the 25% and 32% jumps of 1983 and 1984. **Lean pipeline inventories suggest increases in consumption will quickly translate into production gains.**

SUPPLY: No problems here. Imports are topping out but will still be close in 1986 to this year's level. Domestic potential is adequate. Capital spending should hit $1.87 billion this year—about the same as in 1984. That's enough to assure another 2% increase in production potential. Delivery performance should improve as new computer linkups help reduce the need for fabric inventories. **The aim is to cut in half the time from order to delivery to the retailer.**

PRICE OUTLOOK: Any near-term increases should be moderate. This is partly because of import competition and ample supplies. Restrained cost increases could be a factor. Raw cotton, for example, could stay in the mid-to-upper 50s range. And polyester staple will find it hard to advance above its low 67-68¢/lb current level. Labor's current 4% increase tells the story there. **Count on about a 1-2% average mill product rise through mid-1980.**

Textile mill products

(Index 1967 = 100)



Robotics

A new survey reveals that the U.S. is the now the fastest growing market for these productivity-enhancing machines—with a 411% growth anticipated over the 1985-90 period. And by the latter year, we will surpass Japan as the biggest consumer of robotics. Moreover, the overall U.S. industrial automation market (which includes robots) will grow almost as fast—from $8.1 billion this year to $41.3 billion in 1990. Software will be the biggest gainer, accounting for 17% of all industrial automation dollars by 1990 compared to only 8% currently.

Zinc

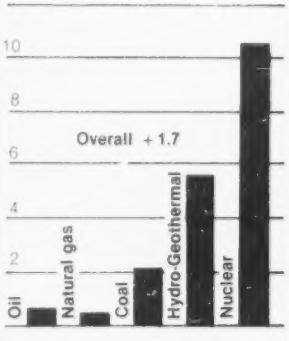
Prices are still heading south. Domestic quotes are now down to the low 30s range. That is in sharp contrast to the the near 45¢/lb level of earlier this year. And no major turnaround is expected despite newly announced production cutbacks. Reason: The big construction and transportation markets, which account for 70% of all U.S. use, will be lucky to reach 1985 levels in 1986. Upshot: Domestic consumption will do little more than stay at this year's disappointing 1.2 million ton level.

Energy

Demand gains are likely to be quite modest next year. A new projection by the Independent Petroleum Association of America (IPAA) puts gains at only 1.7%. For oil and natural gas, the increases are even smaller—only 0.6% and 0.4%. Since GNP is expected to grow at about a 3% rate, the new figures suggest more efficiency gains. Specifically, the nation will use only 43.9 thousand BTU per 1972 GNP dollar—off another 1% from 1985 levels and 29% from pre-OPEC days.

1986 Energy Demands

(% increase of 1985)



Steel

Next month could provide the test as to whether major moves to shore up prices and make them more realistic will work. Included in the new price actions are flat-rolled products, oil country tubular goods, hot rolled bar, and semifinished products. Right now, the betting is that the increases face some rough going. Reasons: (1) Demand remains weak (next year's domestic shipment will be hard put to top this year's estimated 73 million tons), and (2) imports continue to have a major im-

Copper

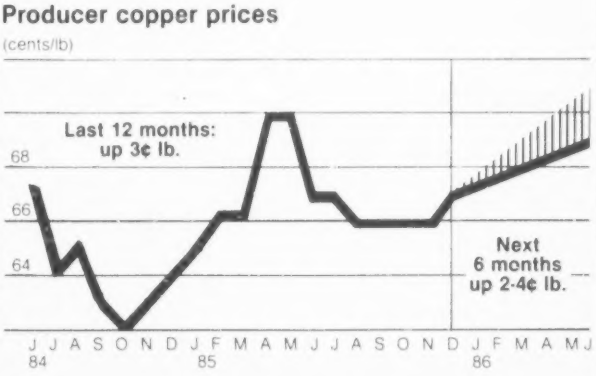
CURRENT SITUATION: Copper continues to see-saw in the mid-60s range. Behind the softness which has dropped tags from the 70¢ levels of earlier this year: (1) recent problems with tin on the London Metal Exchange (LME), (2) lackluster final demand, (3) hand-to-mouth buying on the part of users, and (4) all-out production by Third World producers. The Free World operating rate remains at the 80% level. **Another price depressant is high inventories.**

DEMAND: U.S. consumption will likely hit only 2.2 million short tons this year. And little change is seen for 1986 as two key markets—autos and construction—take a breather. This same pattern is seen for the entire Free World. This year's chewup is put at 7.42 million tonnes—off 1.5-2% from last year. Here again the pattern will be flat for 1986. Sign of the times: **Buyer reticence to nail down next year's contracts and more emphasis on spot purchases.**

SUPPLY: The fact that 55% of global output is state controlled should dictate continued all-out production in many areas. The U.S. excess is on the order of 45%. Not even the upcoming 1986 labor negotiations (here and in Canada) have anyone worried. A strike seems unlikely. **And there is new capacity waiting in the wings.**

PRICE OUTLOOK: There is little to suggest any rally over the next six months or so. Prices could edge up to the lower 70s by next spring. Considering the 82¢/lb quotes of mid-1983, that isn't much. But anything much above 70¢/lb could bring on spate of mine reopenings. **About half our domestic producers could break even if prices bounce back to around 75¢/lb.** At that level, overseas producers (whose average costs run about 58¢/lb) could turn a handsome profit on any marginal increase.

Producer copper prices



Office space

More unrented space is coming on the market, thus assuring continued price concessions into the new year. About 16.5% of the available downtown space is vacant. Suburban excess is put at 21.2%. Downtown areas with the highest vacancy rate are Oakland (24.2%), Denver (24.1%9, Miami (24.1%), Oklahoma City (23.4%), and San Diego (23.6%). One exception to the glut is midtown Manhattan where the rate is now at 7.4%.

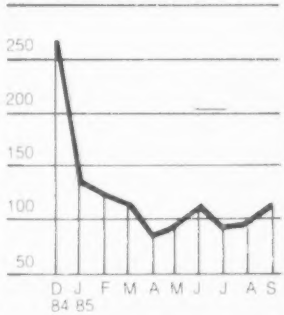
Unbleached kraft paper

This small segment of the paper industry is bucking the overall soft price trend. Reason: The closing down of excess capacity (some 700,000 tons of capacity will be shut down by sometime next year). This, in turn, has helped to knock about 10% off this year's production totals. As a result, the previously existing $30/ton discounts on grocery sack kraft and multiwall paper are beginning to disappear.

Computers

Home computer bargains are proliferating. The discounted IBM PCjr with color monitor can be had for as little as $600. And Apple IIcs, which list for just under $1,000, are available for only $800. Plenty of competition in the more sophisticated PC sector, too. Korean-made IBM compatibles are selling for only $1,495—well under a comparably equipped IBM PC. In many cases, extra discounts are available on packages which combine the basic computer with higher-priced printers and other accessories.

Microcomputer Sales



Platinum

The silver-white metal may be ready for more boosts, perhaps into the $400/oz range by the middle of 1986. In part, this can be attributed to troubles in South Africa where some 90% of the Free World supply comes from. But there's another factor—good demand (estimated at 2.8 million oz this year, some 7% above last year). Producers will be hard put to keep up with all this. There is even the possibility that a shortfall of 100,000 oz could materialize this year. The snugness could also generate some hedge buying, further adding to the upward pressures.

PW PREDICTS

Methanol

Prices of this key chemical have eased off after a mid-year surge which brought tags close to 50¢/gallon. Reason: The temporary supply problems have been overcome and the market is again awash in a global glut. Gulf Coast prices are now down in the 38-39¢/gallon range. Also, imports are coming in at an annual rate of 280 million gallons a year (about 20% of the U.S. market). It is hard to see prices again breaking the 40¢/gallon barrier, certainly not in the next six months.

Office product prices

Overall prices for office products are likely to fall 0.4% over the six-month period ending next April, according to findings of a Quill Corp. survey of the nation's leading office product manufacturers.

This reverses the modest upward trend of the previous six months when price averages moved up about 1.2%. But there are some product-by-product variations. Binding systems and data and word processing supplies are expected to decline 5% and 4% respectively.

On the other hand, forms and reproduction products are both expected to rise in excess of 2% over the same period.

The Lincolnshire, IL-based office products dealer attributes the general weakness to overly optimistic growth projections. Quill's president, Jack Miller, says "these projections were based on widely reported trends toward a service-oriented economy. When office product manufacturers geared up for this growth, they created an overcapacity."

Miller adds that the bulk of competition is expected to occur among domestic manufacturers, with foreign competition more significant in writing instruments and high technology product areas.

The office product price outlook into early 1986

Product line	% change Nov. '85-April '86
Data & word processing supplies	– 4.06
Typewriter supplies	0.33
Reproducing products	2.70
Filing supplies	1.50
Envelopes	0.76
General office paper	0.56
Forms	2.14
Dated goods	0.22
Binding supplies	0.76
Binding systems	– 4.99
Binding accessories	0
Writing instruments	– 1.06
Tapes and tape dispensers	– 0.50
Warehouse and shipping supplies	0.17
Furniture	– 1.06
Office machines (ex computers)	– 0.64
Miscellaneous supplies	– 1.57
Odds and ends	– 0.53

Source: Quill Corp

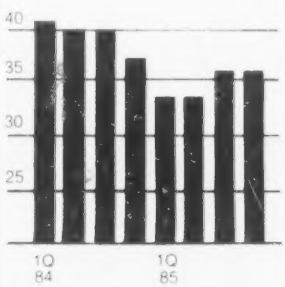
Aluminum

Ingot tags remain in the low mid-40s range as a result of a combination of (1) hand-to-mouth buying by users, (2) rising secondary ingot supplies (up 15-20% this year), and (3) less-than-hoped-for inventory paring (Free World stocks still run over four million tonnes—not that much under the 4.25 million tonne reading of a year ago). Note, too, that sheet prices are at a ten year low. U.S. mills are still cutting back, operating at only 67% of their potential. Even so, any price recovery will be slow. There is little chance for ingot breaking the 50¢/lb barrier any time soon.

Polypropylene

Little near-term price firming is anticipated, despite continued high operating rates and demand which looks to be up as much as 10% this year. Major reason: Competition from polystyrene where prices remain relatively low. Best bet: A continuation of current low tags (35-37¢/lb for the key homopolymer grade) through year end and into early 1986. But some advances are possible next spring if current forecasts calling for a further 5% increase in demand materialize. Such gains could push operating rates into the 94% range.

Polypropylene Prices
(Homopolymer grade)
(Transaction price, ¢/lb.)



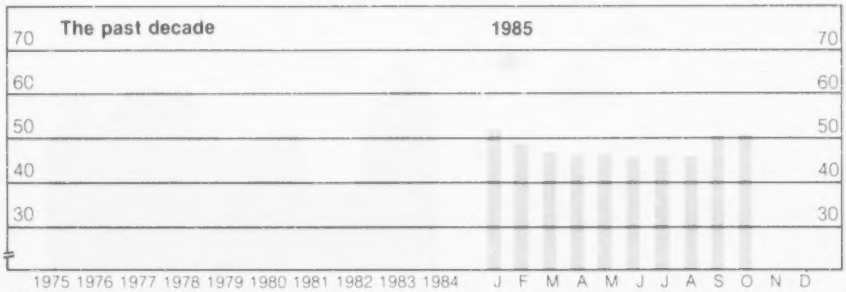
Lead

The heavy metal can't seem to break through the 20¢/lb barrier despite the height of the battery buying season. Largely, this is due to the mild winter last year which reduced battery demand. And there is the continuing phaseout of lead in gasoline. Overall U.S. consumption should continue to sink from about 1.15-1.20 million tons this year to about 1.10-1.15 million tons in 1986. This, in turn, would seem to assure under 20¢/lb quotes through at least next spring.

BUSINESS DATATRAK

NAPM business barometer

Based on five indicators (employment, inventories, new orders, production, vendor performance)



Source: Commerce Dept.

KEY ECONOMIC TRENDS

Up, up but not away

Fourth quarter business gains should be close to the modest third quarter levels—with similar advances also seen for early next year.

Preliminary October-December figures suggest about a 3% or slightly higher GNP increase for the period. And continuation of the gains into the first quarter of 1986 seems pretty much assured as indexes of leading indicators continue in the plus column. For example, the bellwether NAPM Business Barometer is now firmly above the neutral 50 level.

Also, there is nothing on the horizon to indicate any major shift for at least another few quarters. Positive factors at this time would have to include (1) continued low inflation rates, (2) inventories which remain surprisingly low for a business recovery now entering its fourth year, (3) a somewhat lower dollar that should break imports and spur exports, and (4) relatively easy money.

More reassurances on the money front come from recent Fed statements that it will not move aggressively to tighten credit. This, in turn, means short-term interest rates (used for financing consumer debt and working capital needs of business) will remain about where they are through the foreseeable future.

One of the factors keeping credit easy could be the continuing desire to push the dollar down. It is fairly clear that the Fed wants to see more weakening of the dollar which has already fallen about 20% since its high of last February.

Consumers, meantime, continue to spend freely. With disposable income still rising, it looks like a record Christmas season lies ahead. Sales over the holiday period are expected to be up anywhere from 4-6% over last year.

Plans to buy new cars have fallen off a bit following the late summer spurt brought on by Detroit's interest rate concessions. But even here the prognosis isn't bad. The average car is still 7.5 years old and drastically restyled vehicles should continue to attract buyers.

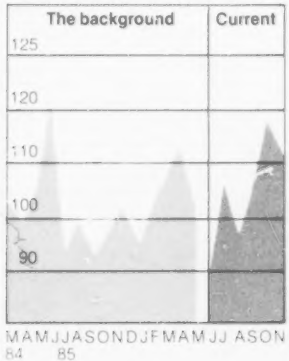
A look at other consumer areas shows spending still heading up. For example, the Conference Board's buying plan index remains close to recent peaks. Near-term gains are anticipated in major appliances where purchase plans have hit a new seven-year high.

The consumer isn't quite as overextended as debt-income ratios would seem to suggest. Almost half of the debt is owed by households in the highest income quintile—people who are best able to service it, if not take out more.

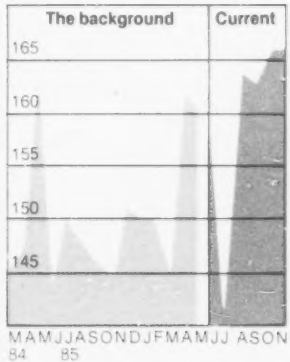
And increasing use of credit cards for conve-

Leading indicators

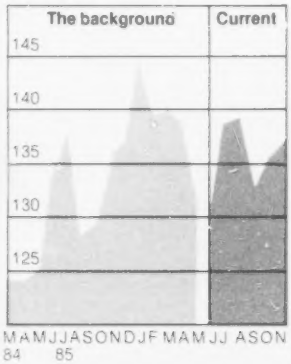
1. Consumer buying plans
(Index: 1969-70 = 100)



2. Construction awards
(Index: 1977 = 100, seas. adj.)



3. Help wanted
(Index: 1967 = 100, seas. adj.)



nience tends to distort debt-income ratios upward. Net out this convenience factor and the ratio would probably dip about one percent.

Construction is also holding up. Take a look at new construction award figures. Not only are they at new record highs, but the outlook is for more gains in 1986.

This is confirmed by a McGraw-Hill forecast that projects a 2% increase in next year's contracting totals, led by a 7% jump in residential activity.

The check is not in the mail

The nation's suppliers are starting to become a bit more concerned about slow payments.

A current National Association of Credit Management (NACM) survey suggests a modest stretch-out in days' sales outstanding over the next six months. About 39% of the NACM survey respondents see additional foot dragging on bills—more than twice the 15% who feel some decline is possible.

This 39% reading reverses the downward trend of just three months ago when a similar survey was taken. It is also the largest such number since early 1983.

Another study, by TRW's Information Services Division, notes that about one out of four customers does not pay on time.

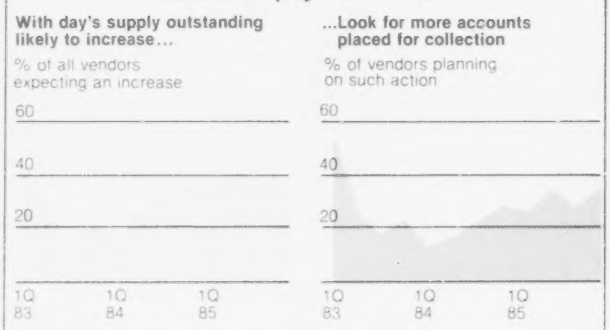
For many industries the performance is even worse. A more than 30% delinquency rate is noted by vendors in such key industries as apparel, plastics, control devices, data processing equipment, electrical equipment, office equipment, furniture and fixtures, construction machinery, fabricated metals, steel, and nonferrous metals.

Given this kind of climate, it is not surprising that more than seven out of ten vendors responding to NACM's survey say slow paying customers are now a serious problem.

Suppliers are responding. Some 35%, for example, expect to increase the number of accounts placed for collection.

Another approach currently being contemplated is more use of service/interest charges on past due accounts (some 17% plan additional use of this tactic). And 41% say they are planning on more stringent credit policies—compared to only 5% who feel some easing is in order.

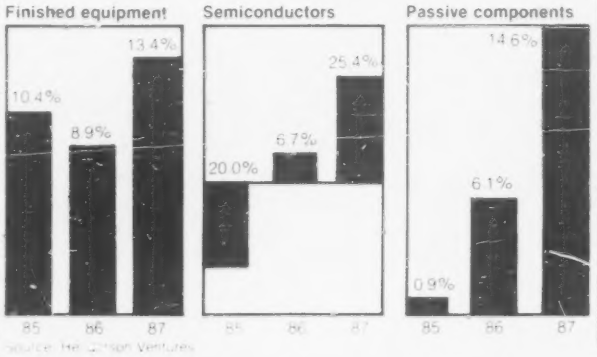
Accounts payable trends



Source: National Association of Credit Management

Electronics industry demand trends

(% change in current dollars)



Source: The Gerson Ventures

Still healthy

Electronics industry demand remains solidly in the plus column (at least on an overall basis). But it isn't likely to match the 17% dollar advance of 1983.

That's how Henderson Ventures sees things. Analysts at the California-based electronics consulting firm, assuming a flat GNP curve, expect only about a 9% gain in total equipment sales next year—not much different from this year's 10% advance. Even in 1987, when the economy is expected to pick up some steam, only modest acceleration is projected.

But all this should not obscure the fact that electronics is still a prime growth industry. Note that the 13% dollar increase projected for 1987 is roughly three times the real GNP growth expected for that year.

Generally, most industry groups will share in the forecasted gains, although cyclically sensitive consumer-oriented products could fall into the negative column next year before rebounding smartly in 1987.

Similar volatility is also anticipated for electronic components. Specifically, this year's disappointing semiconductor showing (dollar totals off more than 20%) should give way to a 7% advance in 1986 and a strong 25% spurt the following year.

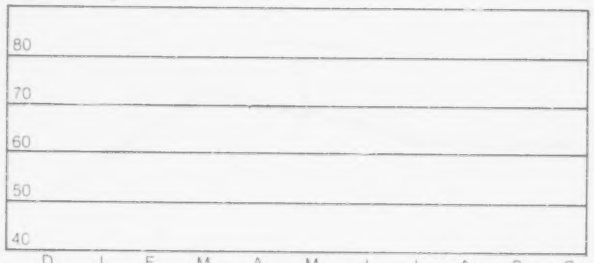
But Henderson Ventures hastens to add that overcapacity will continue to depress average semiconductor selling prices even as unit demand is experiencing a moderate pickup. Full recovery in both the pricing and demand spheres is not expected until the following year (1987).

The outlook is somewhat less volatile for passive components which, in contrast to semiconductors, managed to remain in the plus column—though barely—this year.

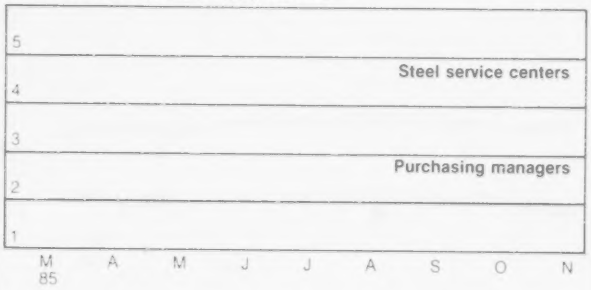
BUSINESS DATATRAK

Steel

Operating rates

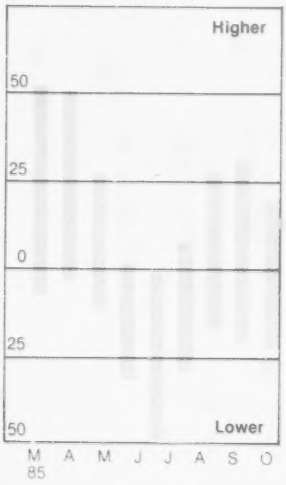


Inventories (months supply on hand)

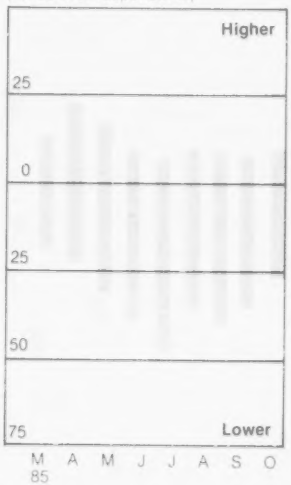


Demand

Service centers incoming orders
(Percent of respondents)



Steel buyer purchase
(Percent of respondents)



Import prices (compared to domestic)

Steel buyers

Above	3%
Same	15%
Slightly below	73%
Substantially below	9%

Service centers (carbon)

Above	0%
Same	11%
5-10% below	81%
10-20% below	8%
Over 20% below	0%

Source: Steel Service Center Institute, NAPM Steel Buyers Committee

STEEL SCENE

Jury out on near-term steel outlook

Steel buyers remain on the bearish side. Those expecting to cut down their metal intake over the next few months now outnumber those expecting an increase by about 3:1.

However, distributors responding to the latest Steel Service Center Institute (SSCI) survey are somewhat more optimistic. They see incoming orders over the next few months on a fairly high plateau.

Even this doesn't tell the whole story. SSCI president Andrew Sharkey cites strong gains in stainless steel. This product line recently registered its best shipping month since survey results were first tallied back in 1978.

Other reports indicate that structural steels have been doing well lately—especially in the Midwest where an office building boom has fueled distributor demand. But even in the service center sector there's a note of caution. Sharkey notes that while defense and automotive markets have been doing well, some areas have been experiencing declines in both new and unfilled orders. He adds that not all geographic regions have been benefitting from recent increased activity.

Distributors as a whole seem to be headed for a record year. Year-to-date shipments top 1984 performance by about 4%.

If this pace continues, service center shipments could hit a new 21.5-22 million ton peak.

All this is in sharp contrast to overall mill performance where shipments for the year are expected to reach only about 73 million tons—little changed from last year's readings.

The reasons for this better service center performance are easy to see: upgraded distributor services, and the industry's ability to capitalize on its traditional strength of holding a customer's inventory—shipping only the tonnages needed by manufacturers for immediate use.

Whether it's the increased service center role or only better internal management, one thing is clear: Steel users are doing with substantially less inventory. Today the average steel user has less than a 2-month supply on hand—9% under highs prevailing as recently as early summer.

These same steel buyers also seem determined to bring their inventories down even further. Thus in response to a question on inventory trends over the next six months, more than half said they were considering further stock decreases--far outweighing a small 6% who felt that some increases might be in order.

Another reason for all this might be the ready availability of virtually all steel products. Not one single service center currently anticipates any problems over the next six months. And in the case

of steel buyers, only one possible problem area has been noted—coated sheet. And here the problems are isolated rather than across the board.

The new surveys also suggest that there are still plenty of import bargains around. Some 8% of service center respondents say they get price breaks of 11-20% in carbon steel—with 23% reporting the same kind of price discounts for stainless.

Steel buyers are still fairly successful in finding overseas bargains. Specifically, some 9% say overseas mills continue to offer prices substantially under comparable domestic levels.

How much longer will all this continue? The answer is up in the air given stepped up policing of steel import quotas. Not one service center expects to increase dependency on foreign steel in the months immediately ahead. And the comparable figure for steel buyers has dropped sharply—from 21% in September to only 9% at latest report.

PROCUREMENT STATUS

You can get what you want when you want it!

Chalk up another month of virtually no change in overall leadtime performance.

More than 90% of the more than 150 product lines regularly monitored by *PW* show no leadtime changes. And even where there have been some stretchouts, they have been effectively offset by improved performance in other sectors.

The reasons for this situation are fairly obvious. For one, while demand has been inching up, so has new production potential. Result: The average U.S. operating rate remains stuck in the 80% range—far enough under preferred levels to assure continued fast deliveries.

The number of purchasing managers reporting faster deliveries over the past month still exceeds those reporting slowdowns—but the gap is beginning to narrow. Latest numbers here: 7% speedup vs. 6% slowdown.

Another positive sign is continued inventory paring. It suggests that most industrial buyers are still confident that they can get what they need when they need it. In fact, only 14% of those queried (an all-time low) are ordering 90 days or more in advance.

Equally reassuring is the fact that the NAPM short-supply list is again devoid of items. It has been that way for nine consecutive months—a good indication that there is enough excess capacity in the economy to take care of both recent demand gains and those that are expected over the next few months.

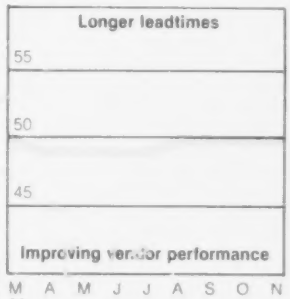
Also, there is the continued absence of any demand-pull pressure on prices. Again, NAPM survey results show that those noting declines outnumber those noting increases for about 11 consecutive months now.

Items currently on the "soft" list now include aluminum, steel, vegetable oil, fuel oil, coal corrugated containers, caustic soda, methanol, phenol, and several petroleum-based chemicals.

Monthly procurement status report

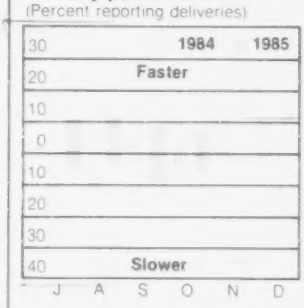
Leadtime index

A "diffusion" index based on 158 key commodities. Avove "50" indicates a tendency for leadtimes to stretch out. Below "50" suggests improving vendor performance.

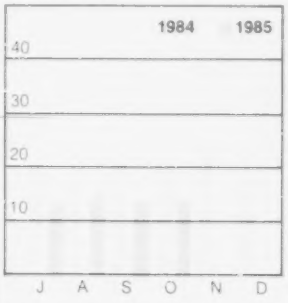


Delivery performance

(Percent reporting deliveries)

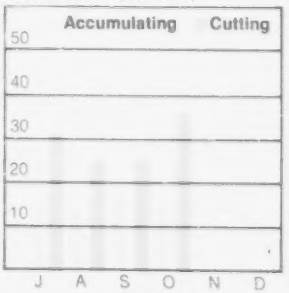


Forward commitments



Inventory strategy

(Percent of respondents)



Source: NAPM

Leadtimes and availability

Chicago: Offset paper leads have doubled to 4-5 weeks. Coming in (weeks) are coated/galvanized sheet (7-8), stock brass and copper sheet, rods, and tubes (1), plyform lumber (2), PVC resins (2), and resistors (6-12).

Cleveland: Modest stretchout in lumber items to these weekly leads: Hardwood (3), softwood (3), and skids (3). Also moving out are plastic shrink film (3-4), coil coating paint (5-6), and maintenance paint (2). Shorter leads for PVC resins (2) and plastic packaging materials (2-3).

Los Angeles: Galvanized steel walls have dropped to 6-8 weeks. Grey iron castings are stretched to 8-10. Other leads: brass castings (4-6), domestic fasteners (4-6), electro-mechanical devices (6-8), standard bearings (20-24), standard valves (10-12), and aluminum sheet (12).

Houston: High pressure heat exchangers are off a month to 6-9. Not much change elsewhere with these weekly leads: pumps (17-31), corrugated containers (2), motor control centers (13-26), plastic bottles (4), and stainless fasteners (8-10).

Philadelphia: Minor stretchouts in IBM tab cards (to 3-4 weeks). Xerographic paper (now 1-2) and polyethylene bags (2-3) have come in a bit. Few changes elsewhere.

Pittsburgh: Tin shipments (ton lots) have come in sharply to 4 weeks. Little change in other lines: paint (4-5), polyethylene (5), PVC (6), alloying metals (2), steel strapping (2-3), seals (1-2), multiwall bags (6), corrugated and folding cartons (3-4), and drums (1).

The wages of purchasing

Robert R. Blumel,
managing editor

O.K. everybody, pull out your paycheck stubs and compare them with the results of the latest PW annual survey of purchasing salaries. Then photocopy the material here and place it in a strategic location around your boss's office.

Some wag once remarked that laws and sausages were made in the same way. It's a process of throwing in pieces of this and bits of that, grinding them up, and seeing what comes out in the end. That may be true of laws, but a comparison of surveys and sausages may be more apt. A good survey has to have some substance behind it. It can't be bits and pieces. The sample and the data collected have to make sense or the results are suspect.

The sample for this latest *PW* survey was carefully selected to give a broader, more comprehensive view of salary structures and to obtain more complete data directly from purchasing management. The questionnaire was mailed to top purchasing and materials management executives at over 2,000 major companies selectively distributed throughout the U.S.

Management is generally in a better posture to know what salaries actually are, what raises are going to be, what factors are considered most important when setting salaries or awarding raises, and other key considerations. It's logical that surveying them produces a more complete cross-section and more reliable results than could be obtained by surveying individuals holding specific positions.

On the flip side, because the survey was of management, the views expressed about job satisfaction, and other questions, do not, of course, reflect the views of all purchasing people. In fact, some questions were omitted from the questionnaire for this reason.

The important issues are where salaries are now, where they are going, and what a purchasing person should do to get ahead. To find that out, management is the source. Besides, it's always good to know what the bosses are thinking.

The good news is...

Raises for 1986 should average in the 6-8% range for most industries and even higher in some specific industries—exclusive of bonuses and incentives. (One of the few industries surveyed that isn't in the 6-8% league is textiles which has been taking some licks lately).

Projecting this, overall purchasing salaries will have increased by 13.4% on average for 1985 and 1986 together. Even adjusted for inflation, increased social security contributions, and other paycheck parasites, you still come up with several percentage points gain in real disposable income out of the raises. And that is good news.

Seeking incentives

In response to a question about suggestions for purchasing compensation, a large number of managers said they felt purchasing should be compensated on a salary and incentive basis similar to sales. The suggestions ranged from incentives based on stretch goals, savings on

Composite salary ranges

VP purchasing
High avg.: $181,900
Mode range: $71,790-$105,209
Low avg.: $41,600
Median: $88,500

VP materials
High avg.: $201,020
Mode range: $88,294-$127,614
Low avg.: $57,213
Median: $108,000

Purchasing director
High avg.: $136,707
Mode range: $61,348-$83,490
Low avg.: $52,112
Median: $72,400

Materials director
High avg.: $122,613
Mode range: $61,520-$79,211
Low avg.: $49,712
Median: $70,400

Purchasing manager
High avg.: $102,391
Mode range: $40,211-$61,702
Low avg.: $32,614
Median: $51,000

Materials manager
High avg.: $118,009
Mode range: $51,118-$72,307
Low avg.: $38,401
Median: $61,700

Purchasing agent
High avg.: $84,789
Mode range: $37,024-$49,506
Low avg.: $34,820
Median: $43,300

Senior buyer
High avg.: $73,281
Mode range: $34,510-$43,920
Low avg.: $29,400
Median: $39,200

Buyer
High avg.: $58,907
Mode range: $28,141-$36,661
Low avg.: $21,403
Median: $32,400

Junior buyer
High avg.: $42,236
Mode range: $22,600-$27,500
Low avg.: $19,613
Median: $25,150

Expediter
High avg.: $46,706
Mode range: $19,257-$27,365
Low avg.: $14,404
Median: $23,300

Trainee
High avg.: $31,339
Mode range: $18,700-$25,300
Low avg.: $15,900
Median: $22,000

High = Highest 10%
Mode range = Most frequently appearing salaries
Low average = Lowest 10%
Median = Average of middle 80% based on 2,394 positions surveyed

purchasing budgets, contributions to the bottom line, to basing compensation and incentives on the size of purchasing expenditures handled.

This interest in incentive compensation seems to reflect the need for greater recognition of what the purchasing function actually contributes to the overall operation and economic health of a company. And, judging from the comments and results of the survey, there seems to be an increasing recognition by managements of the importance of the role of purchasing. One comment, from a PM in a $500 million company, tells the point. He says: "Purchasing at our company is finally being recognized as a very important contributor to corporate operations and objectives. We've worked hard for this recognition and now the company is rewarding us with better salaries and incentive plans. It's a lot better environment now, and it has motivated our people to do an even better job."

Factors in salaries and raises

If you're looking for a good raise, take heed. Managers say the two most important factors they consider in determining raises are performance (62%) and experience (25%), as opposed to education (9%), seniority (2%), and other considerations (2%).

For educational achievements as a factor in determining salaries, most (47%) managers rank a bachelor's degree and a MBA (21%) as the most critical. And although only 13% ranked the Certified Purchasing Manager (C.P.M.) certification as their primary consideration, nearly half (46%) ranked it as their second most important choice. This is particularly noteworthy because there are currently only about 12,000 C.P.M.s in the nation, but the recognition being accorded this distinction seems to be significant and growing in importance.

Salary comparisons

Most (86%) purchasing and materials management managers consider themselves fairly compensated for the work they do. Only 12% said they were not fairly compensated and most of these negative responses were from PMs in smaller

*Purchasing salaries by company size

	Average	To $0.5 billion	$0.5-1.0 billion	$1.0-4.0 billion	$4.0 billion plus	Composite average
VP purchasing	HIGH	75,000	93,742	107,600	146,100	
	LOW	45,500	51,700	65,900	79,600	82,900
VP materials	HIGH	★79,900	85,400	111,100	130,700	
	LOW	52,400	52,500	60,400	79,800	81,800
Purchasing director	HIGH	62,800	70,300	79,100	99,200	
	LOW	44,100	55,000	55,400	59,700	65,700
Materials director	HIGH	54,700	73,200	76,300	90,000	
	LOW	49,700	55,600	55,700	64,600	65,900
Purchasing manager	HIGH	48,300	50,500	60,000	72,100	
	LOW	34,100	38,500	39,900	45,000	44,300
Materials manager	HIGH	48,000	56,800	61,250	70,100	
	LOW	36,700	40,100	47,500	45,000	48,600
Purchasing agent	HIGH	44,600	45,000	47,200	50,000	
	LOW	29,100	33,500	36,100	36,000	40,200
Senior buyer	HIGH	39,000	41,300	44,400	45,000	
	LOW	28,600	27,500	35,000	37,500	37,000
Buyer	HIGH	30,000	32,500	33,300	44,000	
	LOW	24,100	25,000	25,500	28,000	30,300
Junior buyer	HIGH	27,500	27,300	29,000	28,000	
	LOW	18,900	18,700	18,500	18,000	26,400
Expediter	HIGH	20,400	26,000	27,100	32,000	
	LOW	12,000	18,700	21,300	24,000	22,700
Trainee	HIGH	18,500	20,100	24,000	31,000	
	LOW	14,400	16,200	18,500	20,000	20,300

Based on 2,386 positions surveyed nationwide. * Salaries rounded to nearest 100.
★ Sample returned for this position was inadequate to reflect a realistic average.

Purchasing salaries by region

	Average	Northeast	Midwest	South	West	★U.S. average
VP purchasing	HIGH	115,700	109,654	101,494	100,840	114,827
	LOW	77,509	73,209	61,478	63,700	69,419
VP materials	HIGH	132,000	127,900	118,231	113,500	129,000
	LOW	84,720	92,610	74,820	65,900	74,626
Purchasing director	HIGH	74,920	76,831	74,250	80,107	81,306
	LOW	50,622	49,940	49,120	50,260	47,500
Materials director	HIGH	73,291	74,621	70,480	74,230	85,929
	LOW	50,856	53,990	55,210	61,117	61,367
Purchasing manager	HIGH	58,903	57,721	54,840	59,211	58,943
	LOW	39,699	34,200	35,911	35,116	33,721
Materials manager	HIGH	59,810	64,000	61,210	65,000	65,832
	LOW	36,605	35,410	36,290	38,000	35,100
Purchasing agent	HIGH	41,092	44,700	42,907	49,881	47,320
	LOW	33,100	31,220	30,642	33,950	31,736
Senior buyer	HIGH	39,812	40,015	38,915	44,267	43,750
	LOW	29,620	29,078	29,164	28,905	29,911
Buyer	HIGH	33,900	31,000	29,908	35,681	32,676
	LOW	23,474	24,500	22,717	24,815	24,033
Junior buyer	HIGH	26,312	24,129	25,850	28,169	27,629
	LOW	20,118	21,054	19,624	21,320	20,130
Expediter	HIGH	26,920	29,886	24,676	30,010	28,049
	LOW	16,068	19,707	15,700	21,990	18,024
Trainee	HIGH	24,873	24,526	22,182	26,555	23,760
	LOW	17,100	16,735	15,000	20,904	17,815

Based on 2,291 positions surveyed nationwide.
★ Not an average of regional averages. Based on 2,440 positions, separately calculated for all industries and regions.

firms. Some other key findings:

- When asked how purchasing raises compared with those in other departments in their company/division, 13% said they were better, 22% said they were worse, and 59% said they were the same.
- How do purchasing salaries compare with those in other departments in the company? Most (63%) said they were the same, 12% said they tended to be higher, and 16% said they were lower.
- And when compared to comparable occupations, 21% of the surveyed managers said purchasing salaries were higher, 17% said lower, and 57% said they were equal.

In general, there appears—at least from the management point of view—to be a very upbeat, positive feeling in the purchasing profession. Judging from the comments of the respondents to this survey and the answers to the questions, gains have been made in salaries, raises, and in recognition by management that the purchasing function and purchasing people are vital contributors to corporate success. ***PW***

Average 1985 pay hikes and projected 1986 hikes by industry

		Food tobacco, & related products %	Transportation, shipping & related services %	Energy %	Textile mill, apparel, leather %	Rubber, plastics, products %
VP purchasing	1985	7.2	6.9	7	4	6.5
	1986	5-7	5-7	5-7	4-5	6-7
VP materials	1985	6.1	★	5	3.9	6.7
	1986	5-7	★	6-7	★	6-8
Purchasing director	1985	6.7	6	5.4	4.5	6.3
	1986	5-7	5-7	6-7	4-5	5-6
Materials director	1985	★	★	★	2	6.8
	1986	★	★	★	2-3	7-8
Purchasing manager	1985	7.5	6.7	7.4	4.1	6.9
	1986	6-8	5-7	6-8	4-5	7-8
Materials manager	1985	★	6.3	7.2	★	6.9
	1986	★	5-7	6-8	★	7-8
Purchasing agent	1985	7.7	7.1	7.7	4.2	7.2
	1986	6-8	6-8	6-8	3-5	7-8
Senior buyer	1985	7.2	7.2	7.1	4.0	7.0
	1986	6-8	6-7	7-8	3-5	6-8
Buyer	1985	7.5	6.5	7.9	4.9	7.4
	1986	6-8	6-7	7-8	5-6	6-8
Junior buyer	1985	7.1	6.7	7.4	4.2	7.7
	1986	6-8	6-7	6-8	4-5	6-8
Expediter	1985	7.3	6.6	7.4	★	7.0
	1986	6-8	7+	6-8	★	5-7
Trainee	1985	7.7	6.9	7.1	★	7.9
	1986	6-8	7+	6-7	★	6-8
Overall composite (all industries/all positions)					1985	6.63%
					1986	6-8%

Based on 2,286 positions surveyed. ★ Insufficient data.

Purchasing salaries by industry

		Food tobacco, & related products	Transportation, shipping & related services	Energy	Textile mill, apparel, leather	Rubber, plastics, products	Electric, electronics equipment	Communications, electric service
VP purchasing	HIGH	103,000	129,800	105,700	93,000	103,700	102,600	125,000
	LOW	58,100	85,700	83,000	60,000	65,500	65,087	75,100
VP materials	HIGH	155,000	203,900	★	★	102,600	125,000	133,400
	LOW	118,000	151,600			83,400	75,000	★ 75,700
Purchasing director	HIGH	68,200	71,000	125,000	60,000	74,200	71,000	67,300
	LOW	45,500	45,000	★ 58,000	40,000	42,700	55,000	50,600
Materials director	HIGH	85,500	80,000	★ 89,900	61,000	64,200	74,000	82,600
	LOW	60,000	58,900	60,000	55,000	53,000	57,200	53,900
Purchasing manager	HIGH	55,000	72,300	81,400	51,900	59,700	52,000	58,900
	LOW	40,700	42,100	50,700	36,200	41,200	36,000	42,700
Materials manager	HIGH	56,100	42,800	★ 63,100	★	48,700	66,600	57,900
	LOW	40,000	31,500	45,900		39,200	39,000	39,700
Purchasing agent	HIGH	45,000	41,000	46,200	37,200	45,300	45,000	36,400
	LOW	36,100	35,000	37,800	29,400	31,600	32,000	26,900
Senior buyer	HIGH	44,600	43,900	40,400	36,000	38,200	37,000	39,200
	LOW	29,000	28,700	30,000	26,700	28,800	25,000	28,000
Buyer	HIGH	35,000	29,000	29,400	29,000	27,700	29,000	36,000
	LOW	22,900	21,000	23,200	19,700	20,600	18,900	24,000
Junior buyer	HIGH	26,400	24,300	26,000	24,000	28,500	24,000	28,000
	LOW	19,700	17,100	19,500	18,200	22,000	13,100	20,000
Expediter	HIGH	24,000	27,600	29,100	21,800	23,800	24,900	26,600
	LOW	15,600	20,800	18,700	14,900	16,300	10,700	15,700
Trainee	HIGH	24,000	24,000	21,000	19,000	18,500	★	19,700
	LOW	15,000	18,000	16,700	14,600	15,000		15,000

Based on 2,041 positions surveyed nationwide ★ Probably insufficient data for realistic average. Sample return too small.

Electric, electronics equipment %	Communications, electric service %	Medical, pharmaceuticals, & related products %	Metal services centers %	Stone, clay, glass products %	Instruments & related products %	Fabricated metal products %	Machinery %	Transportation equipment %	Chemicals, allied products %	Printing & publishing %	Paper related products %	Composite: All industries %
8.1 6-7	6.3 5-7	7.4 6-8	6.1 6-7	6 7-8	5 6-7	5.5 7+	7.4 5-7	5.8 6-8	5.9 6-8	7.4 7-9	6.9 6-8	6.7 6-8
5.7 6-8	6.1 6-8	7.0 6-8	6.0 6-8	6.2 7-9	4.0 6-7	6 7-9	7.8 5-7	6.6 6-8	5.3 6-8	7.2 7-9	* *	4.5 5-7
7.5 7-8	8.1 6-7	7 7+	6.5 7-8	7.1 7-8	5.3 6-7	6.2 8-9	7.9 6-7	6.2 5-7	6.1 6-8	6.6 7-8	6.7 6-8	6.1 6-7
5.5 5-7	6.6 6-7	7.9 7-8	6.4 7-8	6.3 7-8	6.2 5-7	6.4 8-10	7.1 5-7	5.0 5-7	6.4 6-8	7.0 7-8	* *	6.9 6-8
8.4 6-8	6.7 6-7	8.0 6-7	6.6 7-8	6.9 7-8	5.7 5-7	6.7 8-10	7.7 5-7	6.1 6-7	6.6 6-8	7.5 7-8	7.1 6-8	6.9 6-8
8.0 6-8	6.6 6-7	7.9 7-8	6.6 7-8	6.3 7-8	5.5 4-6	6.9 6-8	7.4 6-8	5.4 5-7	6.5 6-8	6.5 6-8	* *	5.4 5-7
8.4 7-8	6.9 6-8	7.2 7-8	6.9 6-8	7.0 6-8	5.9 4-6	6.4 5-7	7.2 6-8	6.3 5-7	6.9 6-8	7.3 5-7	7.4 6-8	6.0 5-7
8.2 6-8	6.3 5-7	7.2 7-8	7.1 6-8	6.9 6-8	6.3 5-7	6.9 5-7	7.3 6-8	6.4 5-7	7.0 6-8	7.1 5-7	6.9 6-8	6.6 5-7
7.4 6-8	7.3 6-8	6.3 6-7	7.2 5-7	7.3 5-7	5.2 4-6	6.3 5-7	7.2 6-8	6.9 5-7	6.7 6-8	8.1 6-8	6.7 6-8	6.9 6-8
6.9 5-7	6.4 6-8	6.9 6-8	7.1 5-7	5.9 4-6	6.1 5-7	6.1 5-7	7.5 6-8	7.4 6-8	7.7 6-8	7.2 6-8	7.2 6-8	6.7 6-8
6.5 5-7	6.9 7-8	7.1 7-8	6.9 5-7	6.2 5-7	5.9 6-8	7.0 6-8	7.3 6-8	7.0 6-8	7.4 6-8	* *	7.5 6-8	6.9 6-8
7.4 6-8	6.3 8-10	6.5 7-8	5.4 4-6	6.9 5-7	6.3 5-7	6.3 6-8	6.9 6-8	7.4 6-8	6.2 5-7	* *	6.9 6-8	6.7 6-8

Medical, pharmaceuticals, & related products	Metal services centers	Stone, clay, glass products	Instruments & related products	Fabricated metal products	Machinery	Transportation equipment	Chemicals, allied products	Printing & publishing	Paper related products	Miscellaneous
118,900 72,000	100,000 68,000	125,000 73,800	92,000 65,000	100,000 51,900	92,000 48,000	102,600 59,700	136,000 72,000	112,700 78,600	110,000 76,700	87,600 62,700
151,500 * 90,000	109,800 70,100	132,000 90,000	125,000 83,000	96,700 74,000	97,000 56,000	121,000 72,100	* 159,000 70,000	109,000 83,600	122,900 68,400	91,600 59,200
69,400 52,100	63,700 49,900	62,800 44,100	60,500 48,900	72,500 51,200	57,000 39,700	76,000 54,700	87,900 51,400	92,600 42,100	79,600 53,400	82,600 39,700
75,000 55,500	66,000 48,600	* 52,000 48,000	* 62,800 41,300	77,700 64,700	91,400 60,200	61,500 48,300	* 84,100 54,200	*	83,400 49,700	71,600 43,000
51,300 36,700	48,000 34,200	60,500 44,600	59,400 39,200	50,500 38,500	62,800 41,300	61,700 40,400	60,000 40,100	58,000 33,900	62,500 44,200	64,000 31,000
* 65,700 40,500	51,000 39,000	59,700 41,000	50,500 38,700	53,200 39,200	74,000 43,000	49,600 34,700	68,200 45,000	*	*	59,300 35,700
52,300 36,000	41,800 27,500	44,900 28,600	39,000 27,000	46,300 31,700	41,000 28,000	44,000 29,700	48,000 29,000	47,000 24,000	41,900 27,000	36,500 20,000
42,000 31,700	32,900 23,600	39,400 26,300	40,000 25,000	44,000 29,000	38,000 22,000	41,000 27,300	40,000 24,100	36,700 18,900	42,100 28,700	46,000 22,500
38,300 25,500	29,000 19,700	37,500 24,900	28,700 18,900	32,000 24,000	31,600 20,000	32,600 25,400	36,000 21,000	29,400 19,000	31,700 22,600	29,400 16,700
27,400 21,000	19,800 15,000	28,000 24,000	26,200 17,100	27,000 18,500	29,000 19,000	27,200 20,300	22,600 18,000	*	25,000 17,900	21,000 12,900
27,500 18,300	26,900 14,700	21,300 16,600	16,000 11,200	19,600 14,900	21,000 16,000	26,500 21,600	29,600 17,000	26,800 16,400	26,700 18,000	26,000 10,900
26,000 17,500	18,700 12,000	18,000 16,000	20,000 15,700	16,400 12,000	*	20,300 14,900	24,000 16,000	18,000 12,000	21,000 15,700	18,700 11,600

Slow going on the rate trail

This year's overall freight rate boosts are turning out to be well under earlier estimates, according to the latest quarterly report by Wharton Econometrics—prepared exclusively for *PurchasingWorld*.

Right now the prediction is for an overall increase of only 2.5% for all of 1985. That's significantly under the 3.3% estimated six months ago and the 2.7% estimated three months ago. A year ago, talk was of a 6% boost for this year. So much for that.

These projections, incidentally, parallel closely a recent *PW* survey (November, 1985) which indicated a 2-3% increase for the current year.

More important, Wharton's forecast of increases for the next two years has been toned down measurably. The firm's current average estimate for 1986 is put at 4.2% compared to 4.4% three months ago.

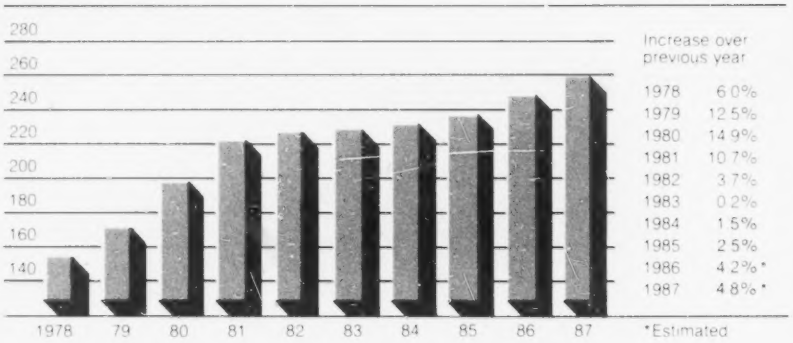
Part of the improvement can undoubtedly be traced to the increasing ingenuity of freight buyers. Aided by deregulation and competitive infighting among carriers, they are increasingly turning to long-term contractual agreements and modal shifts in an effort to shave costs.

Another part of the less-than-expected rate hike story can be traced to fundamental changes in the economy. For one, energy (a key ingredient in transport) has moved up far less than expected.

Imports are also dampening transportation price increases.

PurchasingWorld freight rate index

(1972 = 100)



Here's how Wharton explains the import effect:

As the import share of goods rises, demand for shipping falls because imports are only hauled once or twice. Domestically made goods, on the other hand, are moved as raw material inputs between plants before they are ever hauled into the trade chain. The obvious implication is that higher imports tend to decrease demand for shipping and hence reduce price pressures.

And what is true for overall freight rates holds for each of the key modes. Projections for rail, truck, air, and barge are all moderate. Here is the specific outlook by mode:

■ **Rail**: Traffic picked up considerably in 1984 and the volume of services rendered (in constant dollars) grew 6.7%. Prices, aided by this demand spurt, rose about the same amount.

This year, however, the pace of growth in both freight carried and prices is slowing. Rail price increases should be held to a moderate 2-4% annual rate in each quarter and 3.5% for the year as a whole. On an upbeat note: 1986 and 1987 rate hikes should average out near 4.2% and 4.6%, respectively.

■ **Truck**: Demand has fallen behind its year-earlier pace. Overall 1985 rates should grow only slightly more than they did last year. Best bet: a very modest 2.5% advance.

But in 1986, haulers will try to regain the initiative and price boosts could accelerate to about 4.3%.

■ **Air:** The value of air traffic services grew 4.5% in 1984 and prices jumped 5.5% as carriers tried to recoup their losses from the previous year. But advances should slow in 1985 as the pace of economic growth moderates, input costs hold steady, and tonnages fall behind the previous year's pace.

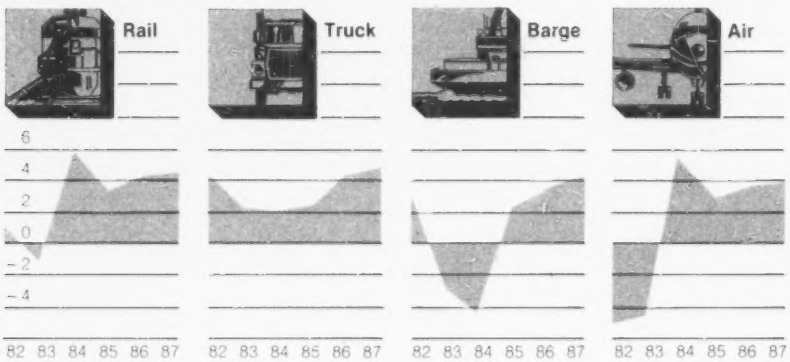
Only a 2.9% hike is expected for this year and the average increases in 1986 and 1987 are put at only 3.7% and 4.0%.

■ **Barge**: Traffic has been slipping in recent years and the industry suffered a 4.3% average price decline last year. Continued overcapacity and cut-throat inter-industry competition should continue to squeeze demand growth rates this year.

Wharton's expectations are for only a 2.3% rate increase this year and a moderate 3.7% acceleration in 1986. ***PW***

Freight cost outlook by mode

(Percent increase over previous year)



Source: Wharton Econometric Forecasts